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ABSTRACT

Current trends affecting private research universities include: privatization, more programmatic support of research, dispersion of university research, and a shift in the balance of activities from the center toward the periphery. Differences in finance and control of private universities are related to their disproportionate importance, given their relatively low share of the student population, in the percentage of advanced degrees awarded, their large share of research expenditures, and their high standings in rankings of excellence. These institutions are also involved in new entrepreneurial behaviors, especially more programmatic research--research intended to be useful to outside sponsors such as the Department of Defense or the National Science Foundation. A third trend has been toward greater dispersion of university research to a wider group of institutions resulting, however, in decreased research shares by those universities most recognized for academic quality. The shift to the periphery is noted in decreases in academic degrees in arts and sciences and increases in organized research units outside of academic departments. For the future, private universities will need to contend with an uncertain financial environment, changes in government support of research, and critics, both external and internal. (Contains 33 references.) (BF)

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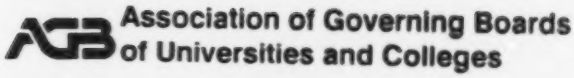

Perspectives on the Current Status of and Emerging Policy Issues for Private Research Universities

By Roger L. Geiger

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I. The American Private Research University

1. Basic Characteristics.

The system of private research universities in this country is unique in the world of higher education. Elsewhere there are private sectors, some of which are growing in size and popularity. Japan and several Latin American countries have some prestigious private universities, but most research is left to the public sector. In Australia, the recently founded Bond University aspires to operate as a world-class research university, but has found this mission most difficult to fulfill. A few major universities in Europe are still nominally private, but in fact are fully enmeshed in educational bureaucracies. Only in the United States have a significant number of private universities led in the evolution of academic research and maintained their prominence in the age of Big--and expensive--science (Geiger, 1986).

The explanation for this anomaly, historically, has been first the availability of private capital to establish and sustain these institutions in their academic traditions; and secondly the separate provision, since 1945 chiefly by the federal government, of much of the direct cost of conducting research. This last condition has been equally important for public universities, which receive the bulk of their capital and operating funds from the states. In this sense, both public and private research universities stand equally before this research economy--the sum of resources made available by American society for the support

of academic research (Geiger, 1990a); and for this reason most of the principal issues confronting the policies and practices of academic science affect them similarly. The private research universities differ from their public counterparts, however, in two significant respects: finance and control. They basically rely upon private resources to support their operations; and, through private self-perpetuating governing boards they have, in many respects, their centers of initiative within themselves (Shils, 1973). These two differences have conditioned the role of the private research universities.

As is widely known, the private sector as a whole has seen its role shrink since World War II. For the last fifteen years it has enrolled only about 23 per cent of students (Table 1). But its importance has been far greater than that figure. Private institutions award one third of bachelor's degrees; 41 per cent of master's degrees; and 36 per cent of doctoral degrees. In medicine, private universities awarded 37 per cent of M.D.s, and in law, 63 per cent of degrees. And they perform 34 per cent of the nation's academic research. The private research universities clearly continue to occupy a crucial position in fulfilling many of higher education's most important tasks.

Being a research university is in many ways a state of mind. It implies commitments to doctoral education and high educational standards, as well as the capacity to conduct significant amounts of research. The Association of American Universities, which is the organizational representative of the research universities in

Washington, includes 27 private institutions among its 56 U.S. members (Table 2). The Carnegie Foundation for the Advancement of Teaching, which periodically classifies colleges and universities, most recently (1987) placed 25 (of 70) private universities in its 'Research Universities I' category, and 8 (of 34) in 'Research Universities II'. A few smaller institutions that qualify as 'Doctoral-Granting Universities' would also consider themselves to be research universities. A third way of defining this group would be to look solely at research expenditures.

2. Institutional Rankings: Quantity and Quality.

A convenient way to compare the rankings of research performers, which avoids the annual escalation of inflated dollars, is to focus on the percentage of research performed by each university. For example, there were 24 universities (excluding pure medical centers) that accounted for better than one per cent of research in 1989 (>$150 million). Nine of those were private institutions (Table 3). In this superheavyweight division are found Stanford next to Wisconsin; Berkeley alongside Harvard.

When one moves down to institutions doing between 1/2 and one per cent of research ($75-150 million), the population is thirty-six, eleven of which are private. Here we have some rather large state institutions next to some rather small private universities: the University of Rochester next to Louisianna State; Caltech and Carnegie-Mellon bracketing SUNY-Buffalo.

The next lower grouping extends from 1/3 to 1/2 per cent ($50-75 million) and includes twenty-nine universities, of which six are private. The same pattern is evident: Emory is near the University of South Florida, and Georgetown falls near Mississippi State. The frequency of private universities thus appears to lessen as one moves down the rankings of research expenditures. The meaning of this is evident: although private institutions are important performers of research, those that do so are a small and special subset of the private sector.

A pattern is faintly visible. Among the one-per-cent universities, private institutions are for the most part large and diversified, almost like their public counterparts; but as one moves down the ranks the differences become more apparent. The private institutions become smaller and more focused, while the publics still tend to be large and comprehensive. An additional piece of information clarifies this picture: 22 of these 26 private universities have medical schools; three more are distinctly focused institutes of technology; and only one--Princeton--has none of these special connections to the research economy. Moreover, for most of these universities the medical school provides a disproportionate share of their research expenditures. This predominance of biomedical funding tends to make private universities more dependent on federal funding than publics.

There is yet another dimension for measuring the role of the private research universities--their contribution to scientific and scholarly excellence. Here they truly stand out. According to

the 1982 ASSESSMENT OF QUALITY IN GRADUATE EDUCATION, 17 of the top 30 universities are private (Webster, 1983). The breakdown is even more impressive: for those institutions having the most departments of greatest distinction, 7 of 8 are private; for those having numerous, very strong departments, 3 of 7 are private; and of the remaining institutions with scattered areas of distinction, 7 of 15 are private. This achievement is no accident, but is related to the private differences in finance and control.

3. Finance and Control.

The independent control of private research universities has permitted a dedication to achieving high standards in undergraduate and graduate education. Such commitments require the consistent iteration over time of consequential decisions about enrollments, investments, and appointments. The private research universities have, for the most part, chosen to have smaller enrollments, of highly able students; and they have preferred to have fewer programs, but of high academic distinction. These are decisions that most public institutions have seldom had the luxury to make. They have a responsibility to maximize their service to the taxpayers who support them, which has translated into maximal feasible enrollments and the proliferation of academic programs. The private research universities, on the other hand, have generally concentrated their resources on those things they could do best (Shils, 1973).

Independent control has thus been a crucial factor in making them what they are, but it is a factor that is scarcely separable from the matter of finance.

High-quality education is high-cost education; and the requirements of maintaining an institutional capacity to conduct substantial amounts of research and attract funds from the research economy is also expensive. Operating such high-cost institutions on the basis of private sources of revenue is the modern existential condition of private research universities (Bowen, 1968; Breneman & Finn, 1978). It is also the reason why there are so few of them. This condition, in simple terms resolves itself into four kinds of dependencies.

Student payments: Students are asked to pay a substantial part of the high cost of their education, and the private research universities (along with some highly selective liberal arts colleges) charge the highest tuition. Of course, their aspiration is to educate the brightest rather than the wealthiest students, which creates an inevitable tension. Last year (1989-90) fewer than 5 per cent of students attended institutions charging tuition of more than $12,000 (Table 4). Private research universities draw their students from a small segment of the population who are fairly sophisticated consumers with considerable discretionary choice.

Probably more than half of those students received some form of student aid from institutional or federal sources. Private colleges and universities received $15 billion in tuition

revenues, but disbursed $3 billion of their own funds in student aid. Tuition pricing--and hence tuition revenue--is thus a complicated matter. It depends upon the capacity (and willingness) of non-subsidized students to pay the full rate; upon the "yield" of tuition (revenues minus institutional student aid from unrestricted funds); and upon the extent to which federal student aid assists needy students (McPherson, et al. 1989).

Endowment income: Every private research university depends to some degree upon an endowment to supplement other revenues. This is the most desirable kind of income; in a sense, it provides the backing for independence. But for that very reason it is never sufficient. The relative contribution of endowment income has been shrinking since World War II, and universities consequently endeavor continually to augment it. In recent years this quest has led them to adopt some quite aggressive--and controversial--investment practices; but more generally the insatiable need for endowment increases university dependence of the next sort.

Voluntary support: Private universities depend on gifts not only to build endowments, but also to assist various parts of current operations. This makes each institution highly sensitive to its own unique constituency of donors. For most, the graduates of the undergraduate college are crucial, a consideration that reinforces the importance accorded to that part of the university. In the past decade, corporations have greatly expanded their support of those segments of the university that

they perceive as beneficial. Regionally based philanthropy is a third common theme in university giving. The opinions and the interests of donors thus becomes an important factor influencing certain aspects of university behavior.

Public trust: The universities in question are only private or independent in a relative sense; their very existence requires that they behave according to canons that sustain widespread public trust. This is true in a legal sense regarding their status as nonprofit corporations and recipients of federal funds, and it is also the case informally concerning their status as fitting objects of philanthropy and fiduciaries for the education of youth. These considerations serve as constraints to certain kinds of actions (or inaction) and goads to forms of behavior associated with social responsibility.

In this last respect, private research universities feel many of the same pressures as public ones, but with greater limitations arising from fiscal constraint. Private institutions have to be more closely sensitive to economic and uneconomic activities. In this respect, then, their greater latitude in control is the necessary complement to a somewhat greater constriction of fiscal means.

In the sections that follow, this basic picture of the private research university will be employed to assess where these institutions stand today and how they might confront the challenges of the immediate future. Part II of this essay will

review the principal trends of the 1980s and specifically address what their impact has been on private research universities. Part III will then consider some issues of current concern and the prospects for the immediate future.

II. The Legacy of the 1980s

.1. Privatization.

Privatization is the general term to indicate a growing reliance on private sources of income to support higher education. It has been a relatively new development. For thirty years after World War II, government investments in higher education increased far faster than private inputs. This trend was definitely reversed in the 1980s (Geiger, 1988). In just the first half of the 1980s funds from private sources grew from 83 to 86 per cent of basic educational expenditures at private institutions, and from 24 to 28 per cent at public institutions. These changes represented an additional $2.3 billion of annual support for higher education provided through private means (Geiger, forthcoming).

Increases in student tuition brought the greatest additions to revenues in the 1980s. Large annual percentage hikes were originally provoked by the double-digit inflation of 1979-81, but such increases then persisted even after inflation subsided. Universities readily justified these actions by their need to catch up with inflated price levels. When no significant backlash

materialized, they continued to raise tuition in order to help meet their accumulated backlog of needs. For the decade, average university tuition rose more rapidly in the private sector than in the public, and most rapidly at private universities. Their cost of attendance rose nearly 60 per cent in real terms.

In a longer perspective, the resort to higher tuition was a continuation, and indeed intensification, of tendencies that were present since the early 1970s. Strong demand for quality undergraduate programs in the 1980s, however, took precedence over earlier fears that high tuition would reduce access. The relative decline of public support for higher education has nevertheless driven much of the tuition rise. Tuition was substituted for inadequate state appropriations at public universities largely in order to maintain accustomed academic standards. At private institutions, a portion of the tuition rise has been devoted to providing substantial amounts of student financial aid. Private universities also have felt compelled to offer many amenities to their students in return for high tuition. They spend disproportionately, for example, for student services and institutional support.

Universities also turned to voluntary support with great effectiveness in the 1980s. Overall giving to higher education had declined in real terms from the late 1960s through the mid-seventies. A modest recovery then only regained the lost ground. The 1980s, however, emerged as the most propitious era for fund-raising since the late 1950s. This new bounty chiefly enlarged

existing patterns of giving, which benefited the research universities. A couple of new wrinkles were evident, however. Among recipients, many public institutions that had lacked highly organized development efforts became aggressive fund-raisers during the decade. Among donors, corporate giving significantly expanded to equal more than a fifth of all voluntary support--a development that favored research universities, especially public ones. Overall, few institutions failed to take advantage of the propitious conditions for fund raising. At last count, 38 of the 56 AAU universities were either conducting or planning formal campaigns--and at least six of these have billion-dollar targets.

Donated funds have fallen unequally across universities, and thus have influenced the incremental expansion of university activities. Schools of Business have been especially well treated, and corporations have been solicitous toward engineering and applied sciences. Voluntary support has thus invigorated those professional schools and departments that have greatest contact with the corporate world. This development is one component in the general turning outward of universities in the 1980s.

There is an additional and more subtle dimension of privatization that has affected research universities--the greater relative strengthening of private institutions. The roots of this trend go back a quarter of a century to the era when just the reverse was true. By the late 1960s most private research universities had reached a point at which their aspirations were

constrained by insufficient resources. Their first reaction was to scale back expansion plans and to seek additional revenues, often through more aggressive management of endowment funds. A second round of fiscal distress followed early in the 1970s, due to shrinkage of voluntary support, inflation, a weak economy, and the bursting of the bubble in research and graduate education. They then endured a more painful episode of actual retrenchment accompanied by a rationalization of operations. Private universities emerged by the late 1970s as leaner and more efficient organizations that were reluctant to make new commitments unless adequate financing was assured. The financial pressures caused by the 1979-81 inflation and recession reinforced these lessons. On the whole, private universities acted with circumspection during the prosperous years that followed.

Public universities learned these lessons more tardily and less thoroughly. Their funding held up well during the 1960s, and the shortfalls of the early 1970s appeared to be aberrations. Their dependence on state appropriations gave them less control over their finances, which translated into less incentive to streamline operations. Indeed, bad funding years struck suddenly, but were eventually followed by some degree of reprieve. Although the public research universities have expanded their private revenues considerably, these funds have tended to compensate for continued weak funding from the states. At no major state research university have state appropriations kept pace with tuition income.

Differences of this kind have a cumulative effect. During the generation of massive government investment in higher education (1945-75) state universities tended to outdistance private ones. But since then movement seems to have been in the other direction. When the 1982 ASSESSMENT OF QUALITY IN GRADUATE EDUCATION is compared to the 1970 Roose-Anderson ratings, private universities show an overall gain in rank (Webster, 1983). Another possible comparison can be made by using instructional budgets as a proxy for investment in faculty. On this measure, 23 private universities showed above-average growth from the mid-seventies to the mid-eighties, against just nine that fell below average (Krohn, in progress).

In sum, the trend of privatization has been advantageous to private research universities not just because of the increased availability of private resources. Rather, they made good use of those resources because, in the ordeal of the preceding era, private universities pared their excesses, rationalized operations, and carefully assessed what missions they could best undertake with the limited means available to them.

Programmatic Support of Research.

Universities in the 1980s have been performing more programmatic research--research intended to be useful to outside sponsors. This is not necessarily applied research--applied research actually grew slightly less than basic in the decade. Despite longstanding public pressure to get more payoff from

academic research, it was not until the 1980s that conditions changed sufficiently to make this feasible. Not only was there increasing funding available for programmatic research, but universities showed a new receptivity toward such work (Geiger, forthcoming).

Among patrons, three developments highlight the drift toward programmatic research. At the beginning of the decade, the vast expansion of military R&D begun in the Carter Administration and greatly accelerated in the first Reagan Administration affected universities. Only a small portion of these funds trickled down to support academic research, but that trickle was sufficient to make the DoD the fastest rising funding source for universities. Its contribution doubled from 1978 to 1983 and it surpassed the NSF as the second largest patron of research. This particular development has probably run its course, but that has not affected the overall trend.

The National Science Foundation currently aspires to become the fastest growing federal patron of academic research, but ironically it has forwarded that claim on the basis of furthering programmatic ends. Under the stewardship of Erich Bloch, the NSF accorded engineering a status of official equality with science in foundation literature and embraced economic competitiveness as a mission. Through the NSF Engineering Research Centers it has actively nurtured university-industry cooperation.

This last area has provided the third major component of programmatic drift. Industry-sponsored research is programmatic

by nature, and it has easily been the most rapidly growing component of academic research in the 1980s. Currently, industry supports 6.6 per cent of university research directly, and perhaps half as much again is intended to further this end indirectly. Industry thus accounts for approximately one-tenth of university research--double what it did fifteen years ago (Geiger, 1990b).

The drift toward programmatic research has on balance been a boon to research universities. It has made the eighties a decade of significant progress in research rather than a repeat of the dismal seventies. It has helped to make the university research system significantly more pluralistic, with four of every nine new dollars in the eighties coming from nonfederal sources. But this new emphasis in research has carried through to other facets of university behavior. The most disturbing aspect to most observers has been the endeavor to commercialize university research.

Universities generally adopted new standards of entrepreneurial behavior in the 1980s. The justification was to further the transfer of technology--the linkage between university research and contributions to the productive economy. The means by which this has been accomplished have been, principally, aggressive patenting, the cultivation of 'propinquity effects' in research parks or business incubators, and promoting the formation of new firms with venture capital and equity stakes (Matkin, 1990; Anderson, 1990; Geiger, 1991).

The criticisms of university involvement with industry have

chiefly focused on such commercialization of research by institutions or individual faculty. Fears include the loss of faculty loyalties and efforts, the conflict of interest between the free dissemination of knowledge and knowledge-linked investments, the misuse of graduate students on commercial ventures, and the withholding of knowledge because of possible commercial value. The basic problem is that these are matters toward which universities must maintain vigilant and responsible policies; however, as universities themselves increase their commercial activities, the apparent conflict grows between their academic responsibilities and their vested financial interests (Kenney, 1986; Fairweather, 1988).

To dwell on such negatives nevertheless obscures two important points. First, the fears of critics ring rather hollow when applied to institutions where these practices have long been conducted responsibly and well. Second, even in the case of institutions initiating such practices, the arguments have had no impact whatsoever on university behavior. The inducements to engage in entrepreneurial behavior, in other words, have far outweighed considerations that might have urged caution in these undertakings.

There are in fact two large ambiguities at the center of the commercial relations of universities. No one doubts that Stanford can do these things effectively, but how many other universities can emulate Stanford? Successful commercial relations depend upon the "economics of opportunism"; but potentially valuable

opportunities are simply not abundant at most institutions (Geiger, 1991).

The second ambiguity has to do with the rationale for engaging in commercial relationships: are they an extension of the service role of universities? Or, do they represent an opportunity to make money? Universities would undoubtedly like to have it both ways, but aside from the experienced players, most cannot. Very few universities would seem to be currently turning a profit from commercial relationships. This situation is not really alarming-- yet--since these are often long-term investments. And they can be justified in any case as part of the service mission. But for a university truly to embrace technology transfer as part of its institutional mission requires decisive actions--to assure that discoveries are disclosed, that patents are marketed, that commercial possibilities are capitalized, and that propinquity effects are realized (Matkin, 1990). To do these things well demands the establishment of separate organizational structures, staffed by nonacademic professionals and well removed from the academic core of the university.

In sum, entrepreneurship, technology transfer, contributions to the economy--all have coalesced into a service mission that is virtually autonomous from the academic goals of universities. Private institutions like MIT and Stanford have pioneered this role, but it has had its greatest appeal to public research universities. They often include large engineering or agricultural colleges where much of this activity is centered. In this

respect, the entire programmatic drift in research support has been more congenial to the strengths of the public sector. Public institutions also find themselves under greater pressure to provide services, especially those believed to have economic value.

Private research universities with technical emphases have also benefited greatly from these trends. But much of the increased activity in the private sector has come from universities that had virtually no relationship with industry prior to 1980 (e.g. Yale, Duke, Columbia, Northwestern). But many private institutions have sought some involvement with industry. The pattern of rankings for industrial funding of research, interestingly, is somewhat different from that for total research: there are still nine private one-per cent performers; but there are more private institutions in the middle range (22), mostly around 1/2 per cent (NSF, 1990). This situation probably reflects the growth of activity in the biomedical field, as well as institutional initiatives to take advantage of the potential of relationships with industry. It could well be that private institutions have been somewhat hungrier than publics when it came to developing new sources of revenue.

3. The Dispersion of University Research.

It seems to be well fixed in minds of most people that university research is dominated by a handful of large, wealthy, prestigious institutions. Insofar as this is the case, it has been becoming less so over time. Shortly after the war, the ten

largest performers of research accounted for 44 per cent of all academic research. Recently, the share of the ten largest has shrunk to less than half of that (Geiger, 1990a). This development had not been anticipated. It had been predicted, in fact, that heightened competition for research funding would favor the 'haves' rather than the 'have-nots.' Instead, other factors seem to have predominated.

The stagnant seventies produced an oversupply of competent scientists. Finding researchers was no longer the constraint that it had been previously. But more importantly, the recent programmatic emphasis of the research economy provided opportunities for those departments or institutions that were accustomed to pursuing practically oriented lines of research. Conspicuous on the list of universities that have significantly increased their shares of research are land-grant universities and institutes of technology. But conspicuous among the decliners are the largest performers of research.

An appreciable part of that decline occurred in the 1980s. The proportion of university research expenditures concentrated in the 10 largest performers declined from 20.3 per cent in 1979 to 17.9 per cent in 1989. In 1979, 4 universities each performed better than 2 per cent of academic research; in 1989, for the first time, none did.

Greater participation in academic research by a wider group of institutions has, implicitly or explicitly, long been a national goal. The disquieting aspect of this trend, however, is

the disjunction between quality and quantity. The institutions that are most recognized for academic quality have generally seen their share of the research economy diminish. Let me be specific: If we look at those 25 universities with the most distinguished departments as rated by the 1982 ASSESSMENT:

* 4 expanded their share of research [3 private]
  (Northwestern, Cornell, Stanford)
* 2 marginally increased [both private]
  (Caltech, MIT)
* 8 marginally decreased [2 private]
  (Duke, Yale)
* 11 decreased their share [5 private].
  (Harvard, Penn, NYU, Columbia, Chicago)

(data from Krohn, in progress)

Does this mean that scientific quality is becoming less important in the distribution of research funds? Or does it mean that the university research system is changing in ways that are too complicated for this simple dichotomy to capture?

Arguing for the first alternative would be the whole drift toward programmatic funding of research, as well as the growing propensity to award research-related funds through 'pork-barrel' appropriations. Most likely, a declining portion of research funds are being awarded through peer review or meritocratic competition.

Still, changes in the nature of the research system could be the more important development. I suspect that subdisciplinary and interdisciplinary specialties are becoming more important than broad departments for the conduct of research and the locus of expertise; and furthermore that these specialized areas of

excellence are scattered more widely than ever before. In addition, the looming wave of retirements in the 1990s could significantly alter the accustomed patterns of academic quality.

It now appears that the ponderous process of conducting a new Assessment of Graduate Programs will be undertaken fairly soon. New rankings could help to determine the extent to which quantity and quality of research are still related. It could well be that the private research universities have used the prosperity of the 1980s to invest in quality in areas that have little impact on research expenditures. Or, the emphasis on programmatic research may have promoted the vigor and the salience of different specialties of more applications-oriented institutions.

4. Centrifugal Forces.

The fourth trend of the 1980s consists of a shift in the balance of activities in universities away from the center and toward the periphery. This is a subtle trend--and one that of course depends upon how center and periphery are defined. Certainly a generation ago most people would have agreed that the most central or integral function of the university was the pursuit of knowledge for its own sake in the basic arts and sciences. According to Talcott Parsons, this was the locus of cognitive rationality--the core value of universities (Parsons & Platt, 1973). If we accept this view for the sake of argument, then the graduate school of arts and sciences is at the center, and the professional schools, while still integral parts of the

university, combine cognitive rationality with different degrees of orientation toward external constituencies and praxis. Some are more insular than others, especially agriculture, business, and law. Other university units combine different combinations of values and constituencies. Given such a picture, what evidence is there for the contention about movement from the center to the periphery.

First, if one looks at changes in instructional activity, as reflected in degrees, a very stark trend is evident. Bachelor's degrees in arts and sciences have declined significantly since the early 1970s, particularly in the humanities and social sciences (Digest of Education Statistics, 1988). If education is included, those degrees comprised two-thirds of the total in 1973, but just over one-third fifteen years later. Bachelor's degrees in business meanwhile doubled to reach one-quarter of all undergraduate majors. A similar pattern occurred for doctoral degrees. Those in letters declined by one-half; social sciences by one-third. Fields registering major gains tend to be scattered throughout the smaller technical and professional areas. In the arts and social sciences, then, there are now simply fewer students to teach on both the undergraduate and graduate levels.

A second piece of evidence might be inferred from the recent proliferation of organized research units [ORUs]. A recent study found their numbers increasing by 42 per cent in the first half of the eighties (Friedman & Friedman, 1986). Such units are established for a variety of tasks that cannot be accommodated in

academic departments. Many of those founded a couple of decades ago were meant to achieve greater integration between the basic disciplines and professional departments. The ORUs of the 1980s, in keeping with the drift toward programmatic funding of research, seem to have been predominantly intended to serve outsiders, particularly industry. Special centers have in fact been one of the chief means for encouraging relationships with industry.

Finally, if one examines all the special organizations associated with technology transfer, one sees the elaboration of a superstructure that is certainly well-removed from the university center. Most remote, perhaps, are the nonprofit corporations established to develop real estate, hold patents, own equity in start-up firms, or act as conduits to for-profit, venture-capital corporations.

A case can be made, then, that a kind of centrifugal process has been at work within universities, largely connected with the other trends of the 1980s. One result may be the increased separation of graduate and undergraduate education, a development that may well bear on the perceived crisis in undergraduate education (see below). Another result has been the fragmentation--further fragmentation, to be exact--of the university as an organization, to the extent that Talcott Parsons' very notion of a core might be called into question.

This trend bears on private research universities in at least two ways. In terms of the curriculum, the strong private

universities have generally been more successful in preserving the vitality of the core arts and sciences. Certainly they still graduate a good proportion of their students in the liberal arts. They generally have greater coherence as institutions, based upon their traditions, their 'moral capital,' and independent control.

On the other hand, this very coherence would seem to be increasingly at risk due to the proliferation of activities on the periphery. Private universities have generally had a special commitment to liberal arts and the academic core, and they should accordingly be the most concerned about preserving balance in their varied activities.

III. Facing the Decade of the Nineties

1. An Uncertain Financial Environment.

The consensus now holds that the United States economy is officially in recession. What impact this has on higher education obviously will depend upon the length and severity of this downturn. Without being fatuous enough to engage in economic forecasting, these circumstance nevertheless promise to leave behind us the relative prosperity of the 1980s. For the private research universities, this has several specific implications.

Recession or no, it seems virtually certain that the burden of paying the debts of the 1980s will fall on the American public. The rise in the real income of the upper middle class, which undergirded the rise in tuition at top-level private

institutions, has in all probability ended for some time. The rate of cost increases at private universities during the 1980s was unsustainable in any case; the 1990s clearly will bear far less. Thus, one pillar of privatization has been removed. Tuition may continue to increase at public universities out of necessity, but the private research universities face price resistance and/or enhanced competition for students in the immediate future.

Both demographic and financial trends would seem to conspire against any significant expansion of revenues for private research universities. Although the dip in college-age students will be temporary, longer-term developments will limit the number of students of the traditional type able to afford full tuition. More young people will be minorities, and more than half will have been reared at least in part by a single parent (Hodgkinson, 1985). The upshot of this is that it will be difficult to expand the parental contribution to private university revenues. Throughout the decade of the eighties, students have increased their own contribution to their education by borrowing (Johnstone, 1986). It would seem both unlikely and undesirable to increase student indebtedness from the current levels. Government provision of need-based student aid has played a decreasing role in financing private universities, and most likely, given the persistent pressures on government expenditures, will decline even further. This leaves the institutions and their donors as the last resort for revenue growth, but one cannot be sanguine that they will be able to

duplicate the success of the 1980s.

Industry played a major role in the vitality of the 1980s, but a recession will test the durability of these commitments. Many of the research relationships will prove to be lasting. The new partnerships between pharmaceutical firms and academic biotechnology, in particular, seem unlikely to be affected by recession. More vulnerable will probably be those efforts in which universities have been proactive in enticing industries into cooperative arrangements. Most firms already confront a surfeit of these opportunities; only those that prove their value will attract continuing investments. A shakeout in this area might not be a catastrophe, but rather an answer to the question of viability that has been repeatedly posed.

Universities would have more to lose from an attenuation of corporate philanthropy. It has compensated for the absence of government support for infrastructure and graduate study, while also providing some discretionary income. Corporate giving tends to be insulated against short-term fluctuations, but the long-term prospects would be imperiled by prolonged economic weakness.

An economic downturn should nevertheless have its most serious impact on state appropriations for higher education, since states would typically face larger mandated expenditures and smaller tax revenues(Hinds & Eckholm, 1990). Such a development would naturally affect the public research universities most adversely. In fact, for many of these institutions the recession is already here. A quick revue of

budget prospects reported in 1990 shows 14 of 17 public research universities exhibiting fiscal distress (shortfalls, freezes, cutbacks, or givebacks).

The relative advantage of private over public research universities thus seems likely to persist in a recessionary environment. The private universities have, on the whole, reacted cautiously to the relative prosperity of the 1980s. They enter the 1990s strengthened financially and with their expenditures under control. Typically, they foresee smaller percentage budget growth (and tuition hikes) than during the 1980s, and many hope to compensate somewhat with massive fund-raising campaigns. Those campaigns could well fall victim to an uncertain economic climate. But giving totals, even if they cease to increase, are likely to remain high due to the momentum of recent development efforts. Given such a scenario, the private research universities will face financial situation that will probably force them to take measures to contain costs and may well preclude desired expansion. This plight may nevertheless be more manageable than that of their public counterparts.

2. The Research Economy.

The level of resources made available for academic research affects both public and private universities. This research economy, in contrast with the national economy, entered the 1990s in fairly robust condition. The figures for FY1989 recently released showed university research expenditures to be substantially larger than earlier estimates (NSF, 1990). This

vigor reflected activity across the board, rather than any single factor. At the moment, it appears more impressive than any of the foreseeable problems affecting specific components.

The federal budget deficit is clearly the darkest cloud overhanging the research economy. The magnitude of the problem simply dwarfs the sums involved. All federal expenditures for academic research (c. $9 billion) represent only a small fraction of the official deficit projections. Still, the federal component of the research economy will be determined by the fate of individual agencies.

The National Science Foundation continues to seek an enlarged role, and enlarged real appropriations, based on the relevance of its activities to economic competitiveness. But now, as ever, pure science seems to lack a political constituency in Congress. If the NSF is able to maintain at least some forward budgetary momentum, it would be positive for university research.

The input to academic research from the Department of Defense will likely move in the opposite direction. This shrinkage might be felt at a few technological universities, but will be more muted elsewhere.

The most interesting--and unpredictable--situation has arisen from the current turmoil over research funding at NIH. The large budget itself is likely to be under pressure, and there is lively disagreement over the proportion that should be devoted directly to research grants. This issue is of particular interest to private research universities, since almost all have medical

schools. Research in these schools may well be underfinanced in the immediate future. Unless they are financially insulated from their parent institution, such problems could cause embarrassment to the universities.

Federal funds now have fallen below 60 per cent of university research economy, and seem likely to slip further in the 1990s. Institutions will consequently become even more reliant on their own resources to encourage research. There is an important difference between public and private universities in the extent to which they use their own funds to support separately budgeted research. In 1982 this figure was 8 per cent for privates and 19 per cent for publics. At the end of the decade the public contribution had increased by 4 percentage points, versus only 1/2 point more for privates. There are valid reasons for this disparity, I suspect, partly having to do with the role of agricultural research. But does this divergence help to account for the greater growth of research expenditures at public universities? Should private universities be investing more of their own funds in support of their research role?

Private universities are considerably more reliant on federal funds (73% vs. 53% in publics), partly due to medical research, which means that they will be more sensitive to federal penury during the 1990s.

3. Research Universities and their Critics: External.

The communities on whom universities ultimately depend have

little direct contact with what universities actually do, particularly in research. Attitudes tend to be shaped by isolated and symbolic events, or by rather vague associations. The favorable climate of the 1980s was conditioned by broadly positive attitudes toward quality in undergraduate education and toward the relevance of academic research for the economic weal. The recent criticisms of higher education, and particularly of research universities, are ominous chiefly because they threaten to undermine these favorable attitudes.

The last few years have brought a succession of attacks on universities; the titles well indicate their tenor and slant:

> KILLING THE SPIRIT: HIGHER EDUCATION IN AMERICA
>
> STILLBORN EDUCATION
>
> THE MORAL COLLAPSE OF THE UNIVERSITY
>
> PROFSCAM

What they all have in common is liberal amounts of 'research bashing,' generally in the form of allegations that teaching is being neglected by professors fixated on research (which is of little value in any case). There is a grain of truth in this charge--which is what makes universities and their leaders uncomfortable. But it is a contrived and highly misleading viewpoint. Universities are, first of all, multipurpose institutions in which different roles to varying extents jostle and conflict with each other. Setting teaching as the single measure of worth is sophomoric (and plays well at that level).

The critics ignore the 90 per cent of institutions that teach but do no research. They also ignore graduate and professional education, which approximates half the enrollment of most private research universities. One could go on, but there is little point; these arguments are rhetorical and journalistic, not empirical. What is most disturbing is that these critics largely have the stage to themselves. The research universities have failed to speak out in their own cause.

Other critiques have been emanating from government. Despite the generally positive view of higher education held by the public, both federal and state governments prefer to believe that much is wrong. This hostility has taken several, unconnected forms. True conservatives believe that higher education is the bastion of the Left and seek to challenge that dominance. They have turned their heaviest fire toward the battle over the curriculum, seeking to preserve some semblance of the Western cultural heritage against the claims of 'diversity.' The attack on Western culture has been waged most conspicuously in research universities, which has not endeared these institutions to the traditionalists. Apparently this accounts for their quixotic propensity to attack research as well. Lynn Cheney's recent (and gratuitous coming from the NEH!) volley in TYRANNICAL MACHINES (1990), for example, includes the usual strictures against research. Conservatives ought to see the integrity of the scientific process as a counterweight to the preoccupations with the presumed social implications of the curriculum that are stressed by their adversaries on the Left.

Instead, many would prefer to cast doubt on the very integrity of science.

Fraud in science is a real problem, but not one of the magnitude that several Congressmen would make of it. Its cause is fairly evident--the excessive bureaucratization of biomedical research, principally at the NIH, which tends to focus on the process (number of publications, etc.) rather than the substance of science. For science and for universities it is more of a public relations problem: Congressional hearings aimed at grabbing headlines and the sheer duration of several prominent cases convey the erroneous image that science is rotten at the core.

Congressional disrespect for institutions of higher education has been manifest most recently in the legislation that requires full reporting of crime rates around universities as well as the graduation rates of athletes. Congress apparently believes that it is protecting consumers (students) against exploitation by self-serving institutions. In truth, it is deluding itself and others with meaningless numbers while imposing yet another burdensome recordkeeping chore on higher education.

In another cause célèbre, Stanford has been pilloried for allegedly inflating its indirect cost base. What is at issue in this case are some arcane points of accounting, which could certainly be negotiated by the appropriate accountants. Instead, a Congressional show has been staged in order to embarrass an

elite institution. Once again, the public image of research universities will be sullied. In this case, however, there are likely to be some further repercussions in the form of government pressures to decrease indirect cost rates elsewhere--with negative consequences for research universities.

In the Executive Branch, a particularly fatuous effort is underway to investigate the most selective private colleges and universities for supposed antitrust violations. The activity in question--regularizing financial aid packages across institutions--scarcely seems to be covered under the concept of antitrust. More importantly, it is an entirely laudable endeavor to prevent 'bidding' for students, thereby extending limited aid resources and encouraging student choice based on other than financial criteria.

At the state level, negative attitudes toward higher education have been manifest in the movement toward assessment. The underlying notion is that institutions are not educating students sufficiently on their own, and thus must be held accountable through some form of assessment procedures (Hutchings & Marchese, 1990).

4. Research Universities and their Critics: Internal.

The cultural Left shares the disdain of their conservative antagonists for research universities. Its proponents tend to exist in and depend on these institutions, while also engaging enthusiastically in the rites of publishing and conference-going. But they essentially reject the most basic tenets of the scientific

ethos (Merton, 1973). Instead of the universality of science, they argue that race and gender be recognized as categories of analysis; instead of objectivity, they hold that reality can only be known subjectively through the mind of the investigator; instead of the free sharing of scientific knowledge, they have organized scientific meetings that were deliberately limited to women; and instead of being systematically critical toward their subjects, their approach is closer to pas d'ennemis à gauche. Faculty holding these views have made significant inroads upon the curriculum. They also tend to seek out individuals of like views in new appointments. To what extent should this situation be a cause for concern?

Another, far gentler line of criticism emanates from those who lead and love these institutions; their feelings are so strong that, under the general rubric of 'social responsibility,' they advocate a larger role in society for research universities. Donna Shalala, Chancellor of the University of Wisconsin at Madison, wishes "to enlist the university as a primary tool for changing the culture at large": it should "function as a moral force beyond the pragmatic"; exhibit "a new dedication to public service as a cornerstone of higher education"; and discover and apply social science in order to remedy social ills (Shalala, 1989: 15-16). Harvard's outgoing President, Derek Bok, has urged a similar point as criticism: "both in teaching and research," he writes, "universities are responsive, but what they respond to is what the society chooses to pay for, not what it most needs"

(Bok, 1990: 44). What is wrong with these noble sentiments? The negative connotation they carry is disturbing: that universities are not currently providing adequate amounts of public service. Moreover, they both seem to promise more than universities can possibly deliver in determining 'what society needs'--certainly a matter for politics--or causing social change--surely the responsibility of government.

On the other hand, the issue of social responsibility is not one that private universities can ignore. Universities are consequential institutions in contemporary society. They have an obligation not only to conduct themselves responsibly, but also to feel and convey a genuine concern over the social implications of their manifold activities. Such a stance is made more difficult by the inherent nature of private research universities. Their commitment to excellence in student and faculty achievements connects them predominantly with the privileged strata of American society. Real concern for the underprivileged is thus an appropriate counterweight; however, social responsibility is poor ground for universities to stake their public worth. On the contrary, they seem for the most part to be discharging admirably those tasks for which they are best suited.

5. The Real Strengths of Private Research Universities

When measured against the actual behavior of the people most directly concerned with research universities, the plaints of the

critics seem rather pallid. Do they neglect teaching? Not if the preferences of students are any indication. Student demand has been extraordinarily strong at the research universities in the past decade. This demand has been the underpinning of their relative prosperity (and their annual tuition hikes). The private research universities are especially strong in this respect; they draw their students from among the most talented and best prepared in the nation. Furthermore, in comparison to their public counterparts, they have the resources and the motivation to provide superior instruction. In this respect they are the standard bearers for the nation.

Graduate education deserves to be included in this discussion, for that offered in American research universities is the envy of the world. Its relative strength, as detailed in ongoing studies by Burton Clark (1991), lie precisely in its structured teaching, as well as with its integration with powerful traditions of research. Here the preferences of foreign students for study in this country are cogent testimony to the strength of our institutions.

Should our universities be distrusted, as so many in government seem to think? Individuals and corporations in the private sector seem to think otherwise, and to back such belief in a most convincing manner--with outright monetary gifts. Donor behavior in the 1980s (as contrasted with the late 1960s for example) gave evidence of great confidence in universities, both public and private, and in the importance of their missions.

Are the basic paradigms of the scientific method in need of reformulation? While an internecine struggle convulses areas of the humanities and social sciences, the techniques of academic science are being employed more widely and effectively than ever elsewhere in universities. Specifically, cognitive rationality ('positivism' to its critics) has been incorporated more rigorously in the diverse professional schools. The 1990 Nobel Prize in economics, for example, was awarded for advances in finance that are now basic to business education.

This last point could be made even more strongly. The great success of research universities in the 1980s has partly been due to the fact that they harbor and cultivate expertise grounded in science across many subjects. The turning outward of the research universities has made that expertise more available to consumers of research, who have eagerly taken advantage of this opportunity. One measure of this is provided by industrial spending for research outside of industry (in nonprofits or universities): in 1970 universities received 42 per cent of these expenditures, but in 1989 their share was 67 per cent. This burgeoning demand for university expertise bears on the final criticism.

From an economist's point of view, what society pays for is what it needs, or at least what it wants. In this respect, universities have emphatically demonstrated their usefulness in the 1980s through breakthroughs such as new superconducting materials, genetically engineered substances, and a host of other discoveries. These activities should be interpreted as the best

fulfillment of their social responsibility--not the vague aspirations of critics to modify behavior in the American population or improve social conditions.

These great strengths possessed by contemporary research universities should not be cause for gloating or complacency. Their essential mission of advancing knowledge and providing excellence in education is immensely challenging. The problems facing them are real and daunting; all the more so because the 1980s were a comparatively easy decade and the 1990s promise to be far more difficult (Kerr, 1990). It will require all the resourcefulness that they can command to sustain their complicated and costly enterprise. But critics who have argued that the research universities are somehow on the wrong track are simply missing the larger picture. The first responsibility of research universities ought to be to continue doing what they have done so well--cultivating challenging education for highly talented undergraduates, providing the strongest graduate training in the world, performing research at the frontiers of knowledge, and sustaining a reservoir of expertise for use by American society. The Trustees of American private research universities bear a heavy responsibility not just in facilitating the attainment of these objectives at their respective institutions, but also in helping to articulate the importance of these functions to the rest of American society.

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BIOGRAPHICAL SKETCH

ROGER L. GEIGER, an historian of higher education, is currently Professor of Higher Education at Pennsylvania State University. His special interests are research universities and private higher education.

He is completing a two volume history of American research universities in the twentieth century. To Advance Knowledge: the Growth of American Research Universities, 1900-1940 (Oxford University Press) appeared in 1986. The sequel, Research and Relevant Knowledge: American Research Universities Since World War II (Oxford University Press) is currently being revised for publication in 1992, also by Oxford University Press.

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Geiger received a Ph.D. in History from the University of Michigan in 1972. From 1974 to 1987 he was located at the Institution for Social and Policy Studies, Yale University, where he wrote on international higher education, including Private Sectors in Higher Education: Structure, Function, and Change in Eight Countries (University of Michigan Press, 1986). More recently he has published Privatization in Higher Education: International Trends and Issues (Princeton: ICED, 1988).

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A P P E N D I X

TABLE 1

ENROLLMENTS AND DEGREES: SELECTED DATA

	Public	Per Cent	Private	Per Cent
Number of Institutions (1985)	1483	45	1808	55
4-Year Institutions	573	28	1497	72
Doctoral Granting	203	46	235	54
Enrollment (Fall,1985)	9,479,000	77	2,768,000	23
Full Time	5,120,000	72	1,954,000	28
F.T.E. (4-Year)	4,240,000	67	2,055,000	33
New Freshmen (4-Yr)	717,000	64	399,000	36
Graduate (full & pt)	891,000	65	486,000	35
First Professional	111,000	41	162,000	59
Degrees (1985-86)				
Bachelor's	659,000	67	329,000	33
Master's	170,000	59	119,000	41
Doctor's	21,433	64	12,220	36
M.D.s	9,991	63	5,947	37
Law	13,419	37	22,425	63

SOURCE: Digest of Education Statistics, 1988

Table 2

Selected Private Research Universities

University	Enrollment	Carnegie Classif.[1]	AAU[2]	Medical School	Tuition	Endowment[3] (in millions $)
MIT	9,500	R 1	Yes	No	15,600	1,250
Cornell	11,525	R 1	Yes	Yes	15,164	823
Stanford	14,386	R 1	Yes	Yes	14,280	1,800
Johns Hopkins	12,647	R 1	Yes	Yes	15,380	527
Harvard	24,194	R 1	Yes	Yes	15,530	4,500
Penn	22,169	R 1	Yes	Yes	14,890	761
Columbia	17,296	R 1	Yes	Yes	14,802	1,400
Yale	10,893	R 1	Yes	Yes	15,180	2,500
USC	29,823	R 1	Yes	Yes	14,378	460
Duke	10,689	R 1	Yes	Yes	14,133	426
Washington U.	11,498	R 1	Yes	Yes	14,925	1,300
Rochester	9,195	R 1	Yes	Yes	14,555	538
Northwestern	16,592	R 1	Yes	Yes	13,725	1,100
Chicago	10,409	R 1	Yes	Yes	15,135	938
New York Univ.	30,750	R 1	Yes	Yes	14,520	540
Carnegie-Mellon	6,993	R 1	Yes	No	14,100	291
CalTech	1,841	R 1	Yes	No	13,489	503
Miami	13,828	R 1	No	Yes	13,050	41
Case Western	8,333	R 1	Yes	Yes	12,800	381
Princeton	6,338	R 1	Yes	No	15,440	2,500
Yeshiva U.	4,543	R 1	No	Yes	10,330	109
Boston U.	28,555	R 1	No	Yes	15,185	176
Vanderbilt	8,960	R 1	Yes	Yes	14,474	557
Georgetown	11,516	R 1	No	Yes	14,569	251
Emory	9,285	R 2	No	Yes	13,700	774
Brown	7,612	R 2	Yes	Yes	15,871	398
Brandeis	3,755	R 2	Yes	No	15,320	145
Syracuse	22,068	R 2	Yes	No	12,120	168
Howard	11,617	R 2	No	Yes	5,905	70
Tulane	10,778	R 2	Yes	Yes	15,580	221
G W	19,232	R 2	No	Yes	13,950	251
RPI	6,702	R 2	No	No	14,725	182
Tufts	8,013	D.G.1	No	Yes	15,917	119
Rice	4,202	D.G.1	Yes	No	7,150	971
Catholic	7,010	D.G.1	Yes	No	11,065	43
Notre Dame	9,335	D.G.1	No	No	12,390	463
Lehigh	6,569	D.G.1	No	No	14,600	193
Clark U	3,350	D.G.2	Yes	No	14,380	41

[1]Carnegie classifications are: Research Universites I and II, Doctoral Granting Universities I and II, Comprehensive Colleges and Universities I and II , Liberal Arts Colleges I and II and 2-year Colleges.

[2]American Association of Universities, Washington, D.C. AAU represents the particular interests of 56 of the most consequential public and private research universities.

[3]As of June 30, 1989

Table 3

Private Research Universities Conducting Research Exceeding $50 million

Univ.	Research Expend. (thous.$)	Rank in Total $ Spent on Research	Percent of Total National Research	Federal Research Expend. (thous. $)	Percent of Research Expend. (Federal)
MIT	287,157	1	1.92%	215,140	74.9%
Cornell	286,733	2	1.91%	157,984	55.0%
Stanford	285,994	3	1.90%	238,650	83.4%
Johns Hopkins	217,000	12	1.44%	168,000	77.4%
Harvard	209,519	16	1.39%	143,451	68.4%
Penn	173,744	21	1.16%	123,810	71.2%
Columbia	172,145	22	1.15%	146,712	85.2%
Yale	171,139	23	1.14%	138,835	81.1%
USC	162,013	25	1.08%	119,005	73.4%
Duke	131,090	30	0.87%	99,036	75.5%
Washington U.	128,419	32	0.85%	96,829	75.4%
Rochester	123,907	37	0.82%	101,049	81.5%
Northwestern	118,991	41	0.79%	57,510	48.3%
Chicago	109,429	44	0.73%	90,459	82.7%
New York Univ.	104,451	47	0.69%	81,143	77.7%
Carnegie-Mellon	101,635	50	0.67%	65,079	64.0%
CalTech	98,731	52	0.65%	84,167	85.2%
Miami	90,293	55	0.60%	63,101	69.9%
Case Western	86,168	56	0.57%	68,632	79.6%
Princeton	82,914	60	0.55%	47,176	56.9%
Yeshiva U.	74,496	67	0.49%	58,224	78.2%
Boston U.	66,325	76	0.44%	56,402	85.0%
Vanderbilt	65,218	77	0.43%	56,151	86.1%
Emory	64,713	78	0.43%	46,497	71.8%
Georgetown	53,597	94	0.35%	37,351	69.7%
Tufts	50,429	97	0.34%	40,771	80.8%
Total	3,516,340	—	23.5%	2,601,164	—
Total National	14,987,279	—	34.0%	8,872,466	—

TABLE 4

RANGE OF TUITION AT FOUR-YEAR INSTITUTIONS, 1989-90

	Number of Colleges	Average Tuition & Fees	Proportion of Total Enrollment
Private Institutions			
$14,000 or more	30	$14,387	7.6%
$13,000 - $13,999	42	13,497	10.3
$12,000 - $12,999	20	12,494	3.3
$11,000 - $11,999	31	11,540	5.5
$10,000 - $10,999	49	10,490	6.3
$9,000 - $9,999	79	9,424	10.0
$8,000 - $8,999	106	8,487	12.4
$7,000 - $7,999	136	7,482	14.2
$6,000 - $6,999	142	6,469	10.2
$5,000 - $5,999	102	5,504	8.1
$4,000 - $4,999	75	4,507	5.1
$3,000 - $3,999	58	3,516	2.8
$2,000 - $2,999	41	2,539	1.6
$1,000 - $1.999	7	1,535	2.2
Less than $1,000	5	259	0.4
TOTAL	923		100.0%
Public Institutions			
$3000 or more	11	$3,284	1.8%
$2000 - $2,999	65	2,383	24.4
$1500 - $1,999	114	1,722	30.9
$1000 - $1,499	119	1,295	28.4
$500 - $999	38	868	14.0
Less than $500	5	393	0.5
TOTAL	352		100.0%

SOURCE: Chronicle of Higher Education, Almanac (Sept. 1990):25.